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ABSTRACT

Using data on life satisfaction from the 1975 Harris National Survey, the psychometric equivalent of the factor structures was examined across four age groupings: ages 18 to 30, 31 to 44, 45 to 64, and 65 and over. Factor invariance was not supported. Results point out that the factor structures of the age groups were dissimilar and that the structure of life satisfaction differed between the age groups. The youngest group displayed a future orientation factor while for the oldest group expectations for the future were tied to other issues such as general past evaluation and getting the important things out of life. Questions are raised as to the appropriateness of comparing mean differences between age groups in light of the findings of different factor structures. (Author)

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Age Differences in the Structure of Life Satisfaction*

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Age Differences in the Structure of Life Satisfaction

Introduction

Traditionally, the differences between age groups have been shown in the differences between mean scores for the several groups. When means are used in this way there is the assumption that at each age the scale is unidimensional and consists of homogeneous items. However, if we are to accept conceptualizations of life-span development which suggest that both individual and environmental influences are likely to produce fundamental changes in the structure of the individual's personality (Neugarten, 1977), then we are obliged to allow for changing structures in the nature of scaled responses for different age groups (Baltes and Nesselroade, 1973). More succinctly, the factor structures for different age groups may differ in a way which reflects the life contexts of each. That consideration would make comparison of age groups more difficult because the variable being compared would not be invariant and comparisons of means would therefore be misleading.

Although the evidence is far from conclusive (Cunningham and Bengtson, 1974; Schaie and Marquette, 1973), from what we already know about the life cycle, the age related changes which face an individual affect the fundamental structure of his personality (Back, 1977). A number of researchers have suggested that the life cycle is comprised of several periods each of which are identifiable in terms of being associated with particular life events (See Hultsch and Plemons (in press) for a recent review.) For example, the stage associated with the period of age 20 to 30 is unique to the extent that many life events such as leaving the family of orientation, selecting a job, and finding a marital partner occur within a rapid succession in an amazingly short amount of time.

While much of the research on life satisfaction has focused primarily on the upper end of the life-span, life satisfaction is a concern at all ages(Lieberman, 1970). Because age related life events would be fundamental to the salience of particular problems at different ages, the structure of life satisfaction might well be affected.

The present study was an investigation of difference in the structure of life satisfaction across age cohorts. Due to the confounding of age and cohort effects in a cross-sectional design the study could only be suggestive. However, if differences in the structure of life satisfaction were basically in line with what would be the likely age-related changes, then the study was conceived to have been useful and an antecedent to designs which might be able to separate age and cohort components of the variance (Baltes, 1968; Cattell, 1970; Schaie, 1977).

The literature has suggested what some of these changes might be. Lieberman (1970) compared item means on the Life Satisfaction Index and found that for younger subjects the items concerning a future orientation were stronger whereas for older subjects items relating to the past were stronger. Costa and McCrae (1976) found that youth are characterized by emotional, as opposed to cognitive, evaluation. Changes toward an internal orientation across the life cycle (Neugarten, 1977) would also have potential consequences

for determining the sources of life satisfaction. Paralleling these factors are the contextual changes which would indicate a life cycle change from status attainment to status consolidation and maintenance (Rosow, 1977).

Because the assessment of life satisfaction involves a reflexive act the structure of life satisfaction would consist of cognitive and emotional components. Four can be suggested as varying across age groups: (1) an evaluation of the past; (2) an evaluation of the present; (3) an evaluation of the future; and (4) a present affective state. Young adults would be expected to separate their future from their past whereas older adults would be more likely to view most of their behaviors in terms of their past. These differences were hypothesized for the factor structures tested.

Methods

Using data of the Life Satisfaction Index (Neugarten, Havighurst, and Tobin, 1961) from the 1975 Harris National Survey, the sample was divided into four age groups: ages 18 to 30 (N=218); ages 31 to 44 (221); ages 45 to 64 (N=345); and 65 and over (1152). Recent developments in confirmatory maximum likelihood factor analysis made it possible to compare the covariance structures of the 18 items from the Life Satisfaction Index (LSI) for the age groups (Joreskog, 1971).

In line with Joreskog's (1971) suggestions a hierarchical set of hypotheses was tested. Each group was initially analyzed separately for the number of factos. If the number of factors for each group were thought to be the same, the next step was to test whether the same factors existed across the groups, i.e., factor invariance. Essentially this involves selecting the model of one group and specifying that all of the other groups have the same factor loadings matrix.

The decision rule at each step was guided by a Chi-square goodness of fit statistic. A significant Chi-square indicated that a lack of fit occurred and another model was tested.

Nesselroade (1977) points out that factor invariance may be difficult to determine unless convariance matrices rather than correlation matrices are factored and unless the factors allowed to covary differently in the age groups. An oblique solution was tested as well as the additional condition of testing factor covariances. By allowing the factor covariance matrix to be free not only are the covariances of factors between groups permitted to vary but also the variances of factors for different age groups could vary.

The COFAMM program was used. Starting values were initially selected from comparable SPSS factor analyses. The minimum number of parameters needed to be set equal to zero in order to identify the model were selected as the lowest values in each column of the factor matrix from the SPSS runs.

Findings

For purposes of discussion we will refer to the four age groups as Young Adults, Adults, The Mature, and the Elderly.

Working up from less to more factors and using the Chi-square statistic as indicator of fit, four factors were chosen to represent the structure of the data for each age group. The Chi-square values were respectively:

Young Adults	$\underline{X}^2_2$ (87) = 114.92, p=.02
Adults	$\underline{X}^2_2$ (87) = 102.21, p=.13
The Mature	$\underline{X}^2_2$ (87) = 115.94, p=.02
The Elderly	$\underline{X}^2$ (87) = 133.08, p=.001

Though the four factor solution for the Elderly group produced a significant

Chi-square at $p < .01$, we exercised our judgment that it was a good representation and that the large number of cases in that group, N=1152, was primarily responsible for inflating the Chi-square value (Joreskog, 1967). Moreover, by opting for comparability in the number of factors we took the conservative approach since we hypothesized that invariance would not hold.

Table 1 contains the factor patterns for the four age groups. Invariance of the structure of life satisfaction was tested by selecting one of the patterns as a model to test simultaneously across the groups. The first group selected was the Young Adults with an oblique solution. The Chi-square value did not indicate invariance over the other groups ($\underline{X}^2(528) = 848.18$, $p = .00$). In order to check another possibility the Adult pattern was also tested as the model. In this case both a free factor-covariance matrix solution and an oblique solution were tested. The respective Chi-squares ($\underline{X}^2(516) = 785.48$ and $\underline{X}^2(528) = 855.52$) were both significant. No rationale appeared appropriate for further testing and no specific comparisons were undertaken. The decision was that the structure of life satisfaction was not invariant and differed for the age groups represented.

Table 2 contains the factor covariance matrices for each age group. Judging from the high correlations between factors in several of the age groups it looks as if the statistical approach to determining the number of factors perhaps led to overfactoring. At any rate a number of the factors for each age group appeared to be quite similar.

The factor solutions are not easy to interpret due to some peculiarities in the factor loadings for the Young Adults. Perhaps they were due to high correlations between the factors. Nevertheless, taking the relative magnitude of loadings as indicating relative importance, it is possible to verbalize the possible nature of the age difference. Factor loadings of less than .35 were not considered.

As indicated in the factor correlations the Young Adults tend to have the greatest tendency toward a unidimensional solution. The only other factor clearly distinguished for them is a future orientation factor comprised of, "I expect some interesting and pleasant things to happen to me in the future", and, "I have made plans for things I'll be doing a month or a year from now." For the Adults the plans for the future seem to be universaly tied to an evaluation, "I've gotten pretty much what I expected out of life." Expectations of interesting things happening are tied to boredom, feeling old, and depression. Plans for the future are not tied into a factor for either the Mature or the Elderly; however, expectations for the future are connected to a variety of things. For example, expectations are tied separately to evaluation of the past and inversely to feeling old for the Mature. For the Elderly expectations for the future are tied to general past evaluation on one hand and inversely to getting the important things in life on the other. This would seem to indicate that for younger people plans and expectations for the future are connected, but for older people expectations for the future are tied to other things.

In general the study suggests that meaningful differences in the nature of life satisfaction may exist between various age groups. Further research would be necessary both to show the stability of the findings within other samples and to test whether age differences or cohort differences were being tapped in this cross-sectional study. Nevertheless the study does give evidence that the factor structure of life satisfaction is different for different age groups. Such a finding brings into question the ability to compare age groups in level of life satisfaction as measured by the LSI. It may be necessary to devise different scales for application to different age groups in a way analogous to methods of obtaining cross-cultural comparability (Gordon, 1968).

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TABLE 1. Factor pattern for each age group.

Life Satisfaction Index Items	Age I Young Adults (18-30)				Age II Adults (31-44)				Age III The Mature (45-64)				Age IV The Elderly (65 and over)			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
As I grow older, things seem better than I thought they would be.			.65		.78		.48								.49	
I have gotten more of the breaks in life than most of the people I know.	-.39		.64		.67		.43					.52				
This is the dreariest time of my life.	1.22			1.18						.86		-.36				.44
I am just as happy as when I was younger.	1.11		.59	.74	.35					.54					.93	
My life could be happier than it is now.	.91		.69	.57	.58		.42			.81			-.38		.67	
These are the best years of my life.	1.18		.44	1.08	.59		.36			.49			-.46		.97	
Most of the things I do are boring or monotonous.	.92			1.13		.37				.73	.38		.40			.36
I expect some interesting and pleasant things to happen to me in the future.		.59				.36					.44	.39	.39	.41		
The things I do are as interesting to me as they ever were.	.71			.75					-.38	.51			.37		.44	
I feel old and somewhat tired.	.90			.97		.44				1.00		-.89				
As I look back on my life, I am fairly well satisfied.	1.24		1.60	-.39	.48							.50	.74			
I would not change my past life even if I could.	.50		1.01		.49							.49	.35			
Compared to other people my age, I make a good appearance.			.42			.52					.48	.41	.65	.38		
I have made plans for things I'll be doing a month or a year from now.		.46						.49								
When I think back over my life, I didn't get most of the important things I wanted.	.89		.80		.35					.53	.52			-.53		.46
Compared to other people, I get down in the dumps too often.	1.15		.36	1.06		.72				.66	.35		.40			.43
I've gotten pretty much what I expected out of life.	1.16		1.28		.76		-.37	-.37			.42	.56	.68			
In spite of what people say, the lot of the average man is getting worse, not better.	.75		.37	.49					.35	.57	.39					.38

TABLE 2. Factor Correlation Matrices for Each Group.

Young Adults

	I	II	III	IV
I	1.00			
II	.26	1.00		
III	-.87	-.13	1.00	
V	-.93	-.15	.89	1.00

Adults

	I	II	III	IV
I	1.00			
II	.36	1.00		
III	-.54	.07	1.00	
IV	.45	-.20	-.52	1.00

The Mature

	I	II	III	IV
I	1.00			
II	.28	1.00		
III	-.43	-.36	1.00	
IV	.29	.81	-.51	1.00

The Elderly

	I	II	III	IV
I	1.00			
II	-.60	1.00		
III	.71	-.22	1.00	
IV	.25	.18	.28	1.00